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<u>L11</u>	L10 same bottom	4	<u>L11</u>
<u>L10</u>	L8 same coat\$ same reflective	72	<u>L10</u>
<u>L9</u>	L8 same coat\$ same rflective	0	<u>L9</u>
<u>L8</u>	L7 same well	8989	<u>L8</u>
<u>L7</u>	fiber near0 optic	48969	<u>L7</u>
<u>L6</u>	L4 same (advantag\$ or useful\$)	21	<u>L6</u>
<u>L5</u>	L4 same bioactive	0	<u>L5</u>
<u>L4</u>	L3 same coat\$	218	<u>L4</u>
<u>L3</u>	well same bottom same reflective	765	<u>L3</u>
<u>L2</u>	L1 same bottom same reflective	2	<u>L2</u>
<u>L1</u>	well same microsphere	2915	<u>L1</u>

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=> s fiber(w) optic
L1 16635 FIBER(W) OPTIC

=> s l1 (p)well
L2 1232 L1 (P) WELL

=> s l2 (p)coat? (p)reflective
L3 2 L2 (P) COAT? (P) REFLECTIVE

=> d bib ab l3 1-2

L3 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1999:684066 CAPLUS
DN 132:56796
TI Multilayer absorber/emitter coatings for infrared fiber optic displays
AU Martin, P. M.; Johnston, J. W.; Stewart, D. C.; Bennett, W. D.; Dalbey, R.
Z.
CS Battelle Pacific Northwest National Laboratory, Richland, WA, USA
SO Annual Technical Conference Proceedings - Society of Vacuum Coaters
(1998), 41st, 212-216
CODEN: ATCCDI; ISSN: 0731-1699
PB Society of Vacuum Coaters
DT Journal
LA English
AB Multilayer tuned IR absorber/emitter **coatings** were applied to
fiber optic IR screen projectors. The **coatings**
consisted of a three layer Si₃N₄/Cr/Si₃N₄ absorber tuned at the 1.06 .mu.m
laser wavelength, and a six layer Cr/dielec./Cr/dielec./Cr/dielec.
coating which emitted strongly in either the 3-5 .mu.m or the 8-12
.mu.m IR wavelength bands. All **coatings** were deposited by
reactive d.c. and RF magnetron sputtering onto 2.5" **fiber**
optic faceplates. The fibers were potted in the square array,
planarized, and then the potting material removed to a depth of 20 .mu.m
to prevent cross talk between the fibers. Either Si₃N₄, Si, or ZnS thin
film dielec. materials were used in the emitter **coatings**. Si₃N₄
was used in the 3-5 .mu.m emitter designs, and was not usable for the 8-12
.mu.m designs because of the Si-N Rhestrahlen band near 8 .mu.m. Si and
ZnS were used for both wavelength ranges. The absorption of the three
layer **coating** was > 0.99 at 1.06 .mu.m. The av. emittance of
the six layer **coatings** was > 0.95 at the design wavelengths.
With an input laser power of 15 W, the **coatings** emitted at a
black body temp. 529 K, which compares **well** with black body
radiation predictions. The **coatings** were analyzed after thermal
cycling, and some delamination occurred at the edges of the fiber

surfaces. This was attributed to residual potting material left on the edges of the fibers, and to surface defects in the fibers. The selection of the metal **reflective** layer and a non-absorbing dielec. layer was crit. to the performance of the **coating**, which let to general design rules for this type of **coating**.

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2003 ACS on STN

AN 1999:363300 CAPLUS

DN 131:94594

TI Multilayer coatings and optical materials for tuned infrared emittance and thermal control

AU Martin, P. M.; Johnston, J. W.; Bennett, W. D.

CS Pacific Northwest National Laboratory, Richland, WA, 99352, USA

SO Materials Research Society Symposium Proceedings (1999), 555(Properties and Processing of Vapor-Deposited Coatings), 3-12

CODEN: MRSPDH; ISSN: 0272-9172

PB Materials Research Society

DT Journal

LA English

AB Many thermal control applications require thin film **coatings** that emit or absorb strongly at near IR and IR wavelengths. One of the primary applications for these **coatings** is thermal control for surfaces and structures of spacecraft, which are exposed to solar radiation during at least 60% of their orbit, causing wide temp. fluctuations. Another recent application for this type of **coating** is IR emissive imaging employing a **fiber optic** IR scene projector. While single layer **coatings** can provide high emissivity in a broad wavelength band, multilayer **coatings** can be used to obtain higher emissivities over a narrow wavelength band. This band can be tuned to a specific range of temps. and wavelengths. **Coatings** developed for thermal control have a **reflective** base layer, either ZrN or a refractory metal boride or silicide. These materials have increased durability compared to metal layers. The multilayer **coating** deposited over the based layer consists of an Al₂O₃/SiO₂ stack with high emittance at 300 K (9.8 .mu.m), and solar reflectance near 0.6. Multilayer tuned IR absorber/emitter **coatings** are applied to **fiber optic** IR scene projectors. The **coatings** consists of a three layer Si₃N₄/Cr/Si₃N₄ absorber tuned at the 1.06 .mu.m laser wavelength, and a six layer Cr/dielec./Cr/dielec./Cr/dielec. **coating** which emits strongly in either the 3-5 .mu.m or the 8-12 .mu.m IR wavelength bands. Absorption bands of the **coatings** are independently tunable. All **coatings** are deposited by reactive d.c. and RF magnetron sputtering onto 2.5-in **fiber optic** faceplates. Either Si₃N₄, Si, or ZnS thin film dielec. materials were used in the emitter **coatings**. With an input laser power of 15 W, the **coatings** emit at a black body temp. 529 K, which compared **well** with predicted performance.

RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

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